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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/777,181	02/13/2004	Quen-Zong Wu	ASI 132	4467

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EXAMINER	
WANG, CLAIRE X	

ART UNIT	PAPER NUMBER
2624	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	03/07/2007	PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

**Office Action Summary**

Application No.

10/777,181

Applicant(s)

WU ET AL.

Examiner

Claire Wang

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 13 February 2004.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-10 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 13 February 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Specification***

1. The disclosure is objected to because of the following informalities:  
  
On page 1, line 5 of the specification, the word "digit" should be changed to "digital."  
  
Appropriate correction is required.

### ***Claim Rejections - 35 USC § 112***

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:  
  
The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter, which the applicant regards as his invention.
3. Claims 1-10 are rejected under second paragraph of 35 U.S.C. 112.  
  
As to Claim 1, it recites the limitation "said binarization threshold" in lines 12-14.  
  
There is insufficient antecedent basis for this limitation in the claim.  
  
As to claims 2-10, they are rejected because they are dependent from claim 1.

***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1-3 and 7-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tagami et al. (US 2004/0218787 hereinafter "Tagami") in view of Wootton et al. (US 5,956,424 hereinafter "Wootton")

As to claim 1, Tagami teaches a method for detecting motion pixels in image (a motion detecting method through image processing; Paragraph [0001]), comprising steps of obtaining difference image between current image and background image (a subtractor finds the difference between an input image and an image already obtained previously, thus producing the frame difference; [0007]); finding a binarization threshold from the distribution of all absolute pixel values in said updated difference image (an absolute value circuit calculates the absolute values of the frame difference; [0008]), changing the pixel values whose absolute values are larger than said binarization threshold to high (setting the output to "1" when the motion is greater than the allowed motion threshold; [0088]), and changing the pixel values whose absolute values are equal to or smaller than said binarization threshold to low (setting the output to "0" when the motion is equal to or smaller than the allowed motion threshold; [0088]),

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thereby obtaining a binarized updated difference image (setting the output to "1" when the motion is greater than the allowed motion threshold and setting the output to "0" when the motion is equal to or smaller than the allowed motion threshold; [0088] this is a way to binarize the image); and determining pixels in said binarized updated difference image whose values are high as motion pixels (since the "1" value is only given to the values higher than the motion threshold, this means that "1" values represents motion). However, Tagami does not teach finding a binarization threshold from the distribution of all absolute pixel values in said difference image; using all or part of the pixel values, in said difference image, whose absolute values are smaller than or equal to said binarization threshold to compensate the effect of illumination change and to obtain an updated difference image.

Wootton teaches an alarm system that rejects light intrusion false alarms (Col. 2, lines 15-20). Wootton further teaches that establishes thresholds for changes in pixel value and discriminate between significant and non-significant changes based upon whether or not the changes exceed threshold levels (Col. 2, lines 52-56). Thus Wootton's system for detecting false positives due to lighting changes reads on the claimed binarization to compensate the effect of illumination change. Therefore, it would have been obvious for one ordinarily skilled in the art at the time of the invention to combine Tagami's motion detection system with Wootton's system for detecting false alarms in order to compensate for lighting changes that would occur normally (Col. 2, lines 57-61).

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As to claim 2, Tagami teaches wherein obtaining difference image between current image and background image is performed by subtracting said background image from said current image (a subtractor finds the difference between an input image and an image already obtained previously, thus producing the frame difference; [0007]).

As to claim 3, Tagami teaches wherein of obtaining difference image between current image and background image is performed by eliminating said background image from said current image (by subtracting the frames only the difference of the two frames is obtained, which means anything that is not moving will be canceled out, thus the background will be removed by the subtraction of the two frames; [0007]).

As to claim 7, using an average value of all or part of the pixel values, in difference image, whose absolute values are smaller than or equal to said binarization threshold as a correction value (thresholds for changes in pixel value and discriminate between significant and non-significant changes based upon whether or not the changes exceed threshold levels (Col. 2, lines 52-56)), and then subtracting said correction value from difference image, thereby obtaining said updated difference image (once the it is determined that the difference in pixel value is non-significant the change is considered to be noise and is therefore disregarded; Col. 2, lines 58-62).

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As to claim 8, it differs from claim 7 in that claim 8 teaches, "eliminating" the correction value from the difference image whereas claim 7 teaches "subtracting" the correction value from the difference image. Subtraction is a way of eliminating a value. Thus Tagami and Wootton still read on claim 8. Please see claim 7 for detail analysis.

6. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tagami and Wootton as applied to claims 1-3 and 7-8 above, and further in view of Srinivasa (US 2004/0042676).

As to claim 4, Tagami and Wootton do not teach wherein of obtaining difference image between current image and background image is performed by subtracting said background image after performing a logarithmic operation from said current image after performing a logarithmic operation. Srinivasa teaches an illumination compensation method for digital images that takes the Log of the scene image input and finds the Log of the local mean and subtracts the two images ([0046]). Thus the illumination compensation method of Srinivasa reads on the claimed logarithmic operation. Therefore, it would have been obvious to one ordinarily skilled in the art at the time of the invention to combine Tagami and Wootton's motion detection method with Srinivasa's illumination compensation method in order to balance out the dynamic range of the a scene within a digital image by contrast enhancement (Srinivasa [0002]).

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7. Claims 5-6 and 9-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tagami and Wootton as applied to claims 1-3 and 7-8 above, and further in view of Krumm et al. (US 6,788,818 hereinafter "Krumm").

As to claim 5, it differs from claim 1 in that claim 5 further teaches a histogram being plotted for the values found for the binarization threshold from the distribution of all absolute pixel values in the difference image. Tagami and Wootton do not teach of a histogram plot for their calculated data. Krumm teaches a system for optimizing false alarm using histogram matching. Fig. 4 of Krumm shows a histogram containing false alarm data. Thus Krumm's histogram reads on the claimed histogram. Therefore it would have been obvious for one ordinarily skilled in the art at the time of the invention to combine Tagami and Wootton's motion detection method with Krumm's histogram in order to compute the probability of false alarms (Col.1, lines 9-11).

As to claim 6, it differs from claim 5 in that claim 6 teaches the cumulative occurrence percentage instead of the cumulative occurrence count taught in claim 5.

As to claims 9 and 10, they are the same as claims 5 and 6. Please see above for detail analysis.



***Conclusion***

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Ruland (6,104,831) teaches a method for rejection of flickering lights in an imaging system.

Wootton et al. (5,937,092) teaches rejection of light intrusion false alarms in a video security system.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Claire Wang whose telephone number is 571-270-1051. The examiner can normally be reached on Mid-day flex.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Joseph Mancuso can be reached on 571-272-7695. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Claire Wang  
03/03/2007



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